

IN THE DRAWINGS

Applicant submits a set of replacement drawings addressing the concerns stated on page 3 of the Office Action. Particularly, Figures 2-4 have been amended and Figure 5 has been added. No new matter has been added by any of the Figures.

REMARKS

Objections to the Specification

The Office Action first indicates that the specification is objected-to because the Background, Summary, Detailed Description, and other sections are not labeled. To address these concerns, Applicant submits a substitute specification pursuant to M.P.E.P §608.01(q). No new matter has been added. In light of the substitute specification, Applicant requests that the Examiner withdraw the objections to the specification.

Objections to the Drawings

The Office Action next indicates that the drawings are objected-to because reference number 23 of Figure 4 is mislabeled as 16, and because the X and Y axes shown in Figures 2 and 3 are not in English. Accordingly, Applicant has amended the axes labels on Figures 2 and 3 to now appear in the English language, and changed reference number 16 to now read 23 on Figure 4. No new matter has been added.

The Office Action also alleges that the drawings fail to show structural detail that is essential for a proper understanding of the claimed invention. The structural detail specifically noted as “essential” in the Office Action is the detail for “the continuous, wavelength-selectively reflective structure.” *Spec.*, Figure 4, Ref. #18. To address this concern, Applicant has, without adding new matter, added a new Figure 5 to the drawings. However, the structural detail that is now illustrated in Figure 5 is not “essential” for a proper understanding of the invention. The M.P.E.P. provides.

[a]n objective standard for determining compliance with the written description requirement is ‘does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed.’...Whenever the issue arises, the fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed....Possession may be shown in a variety of ways including description of an actual reduction to practice....”

See *M.P.E.P.* §2163.02.

In this case, lines 1-11 on page 11 of the originally filed specification state that the “demultiplexer 10 and multiplexer 12 of Figure 1 are here merged into a continuous, wavelength-selectively reflecting structure 18 having four gates.” See *Originally-filed Spec.*, page 11, ll. 2-11. Both the demultiplexer 10 and the multiplexer 12 are illustrated in Figures 1A-1B, and their functionality is defined in the corresponding text. See *Originally-filed Spec.*, p. 6, ln. 18 – p. 9, ln. 8. Further, all gates associated with the resultant continuous, wavelength-selectively reflecting structure 18 are illustrated in Figure 4 and discussed in the above-cited portion of the specification. Additionally, the specification explicitly details how one skilled in the art could form a continuous, wavelength-selectively reflecting structure 18 having four gates. “Such a four-gate structure 18 may easily be formed, for example, by an optical integrated Bragg grating, the grating constant of which is selected so as to reflect the supervisory channel and to transmit the payload channels.” See *Originally-filed Spec.*, p. 11, ll. 9-11. Anyone of ordinary skill in the art knows what a Bragg grating is and how to select a grating constant. Therefore, they would easily be able to build structure 18 using the information and figures filed with the original specification.

The specification is not intended to be a blueprint or a manufacturing specification, and the degree of detail necessary depends on the technological area of art. In this case, given only the originally-filed description and drawings, one skilled in the art would easily be able to make and use present invention. Nevertheless, in an attempt to address the concerns noted in the Office Action, Applicant added Figure 5 illustrating the four-gate structure 18 and amended the specification accordingly. Note that the details of the structure 18 – i.e., the Bragg grating, and the gates, are all shown in Figure 4 and/or discussed in detail in the corresponding text. Therefore, no new matter has been added.

In light of the foregoing remarks and the amendments to the drawings, Applicant respectfully requests that the Examiner withdraw the objection to the drawings.

35 U.S.C. §112 ¶1 Rejections

The Office Action next indicates that claims 9 and 15 stand rejected under §112 ¶1 because the specification allegedly does not show a wavelength-selective reflective structure, as claimed. Applicant disagrees. This subject matter is fully supported on page 11, lines 1-11 of the originally-filed specification, and in Figures 4. The particular functions of the multiplexer and demultiplexer are provided in Figures 1A-1B and the corresponding text. *See Originally-filed Spec.*, p. 6, ln. 18 – p. 9, ln. 8. Given this description, and especially the portion that describes how to construct a four-gate structure to perform the invention (*see Spec.*, p. 11, ll. 9-11), the §112 ¶1 rejection should be withdrawn.

35 U.S.C. §103(a) Rejections

The Office Action also indicates that claim 9 stands rejected under §103(a) as being unpatentable over Sugaya (U.S. Pat. No. 6,292,289). However, Sugaya does not teach or suggest every limitation of claim 9, and therefore, does not render claim 9 obvious.

Claim 9 is directed to an amplifier node for an optical network. The amplifier node comprises, *inter alia*, at least one input port receiving an incoming optical wavelength-multiplex signal, a pre-amplifier receiving the incoming optical wavelength-multiplex signal, a dispersion compensator receiving the outgoing optical wavelength-multiplex signal, and a post-amplifier receiving a dispersion compensated outgoing optical wavelength-multiplex signal and transmitting an amplified dispersion compensated outgoing optical wavelength-multiplex signal.

Claim 9 recites, “a continuous, wavelength-selectively reflective structure comprising a merged demultiplexer and multiplexer.” In this context, the meaning of the word “reflective” is

clear and would be unambiguously clear to those of ordinary skill in the art. Particularly, being “reflective” means that the claimed continuous, wavelength-selectively reflective structure would reflect optical light (in this case, the supervisory channel). This is clearly supported in the specification on page 11, lines 9-11. Despite the contentions in the Office Action, Sugaya neither teaches nor suggests such a reflective structure.

Sugaya discloses a method of transmitting a supervisory optical signal without degrading the quality of a main signal. The Office Action equates the extracting and combining couplers (18, 22) disclosed in column 8, lines 53-61 of Sugaya to the continuous, wavelength-selectively reflective structure comprising a merged demultiplexer and multiplexer of claim 9. Applicant has scrutinized the reference, and especially the cited passage, and has determined that Sugaya neither teaches nor suggests anything of the sort.

The couplers of Sugaya are wavelength couplers. A first wavelength coupler (18) extracts a supervisory signal from a main signal, and sends it to a supervisory circuit for processing. Once processed, the other wavelength coupler (22) multiplexes the processed supervisory signal with the main signal. *Sugaya*, col. 8, ln. 43 – col. 9, ln. 15. There is nothing in Sugaya that mentions that the couplers are reflective structures, or that they comprise a merged demultiplexer and multiplexer. Further, nothing in Sugaya appears to teach or suggest the plurality of gates recited in claim 9.

Respectfully, the Office Action does not appear to afford the claim term “reflective” any patentable weight when providing the reasons for the rejection. However, claim 9 explicitly recites that term, and therefore, it cannot be ignored. Thus, the rejection is improper. The claimed structure comprises both a multiplexer and a demultiplexer, and is reflective. The wavelength couplers of Sugaya, in contrast, are not reflective and do not comprise a multiplexer and a demultiplexer, as claimed. Nor does Sugaya suggest at anything of the sort. Evidencing

this is the fact that Sugaya explicitly identifies his multiplexer and demultiplexer with two different reference numbers (30, 32) that are distinct from the wavelength couplers.


Sugaya does not teach or suggest every limitation of claim 9. Therefore, it cannot render claim 9, or any of its dependent claims, obvious.

Claim 15 is directed to an optical network and stands rejected as being obvious over Sugaya. However, claim 15 recites, "a continuous, wavelength-selectively reflective structure comprising a merged demultiplexer and multiplexer." For reasons similar to those stated above, Sugaya does not teach or suggest this limitation of claim 15. Therefore, claim 15 and its dependent claims are not rendered obvious over Sugaya.

Finally, dependent claims 10-11, 13-14, and 16-17 stand rejected as being obvious over Sugaya in view of Peragine (U.S. Pat. No. 6,623,185). Claims 10-11 and 13-14 depend from claim 9, and claims 16-17 depend from claim 15. For the reasons stated above, the independent claims 9 and 15 are non-obvious over Sugaya, and Peragine does not remedy those deficiencies. Therefore, dependent claims 10-11, 13-14, and 16-17 are also non-obvious.

In light of the foregoing remarks and amendments to the claims, Applicant respectfully requests allowance of all pending claims.

Respectfully submitted,
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